

AMENDMENTS TO THE CLAIMS

Claims 1-44 (cancelled)

45. (New) A method of controlling a brush chipper of a type having an engine, cutters, feed rollers, a hydraulic control for rotating said feed rollers, a feed table for supporting material to be chipped and a controller, said method comprising:

monitoring a time sequence of events related to the utilization of the brush chipper; and

modifying performance of one of the engine, cutters, or feed rollers in response to said monitoring.

46. (New) The method of claim 45 comprising:

operating the feed rollers and cutters to cut brush while monitoring the engine speed;

using the time sequence of engine speed to calculate the engine deceleration for a time period to determine a calculated de-celeration;

using the calculated deceleration to predict the engine speed in a first future time period and if the predicted engine speed is below a droop threshold to stop the feed rollers for a second time period and monitor the engine speed to calculate the engine acceleration to determine a calculated acceleration;

using the calculated acceleration to predict the engine speed in a second future time period and (a) if the predicted engine speed is again below the droop threshold, reverse the feed rollers, and (b) if the predicted speed is above the droop threshold operate the feed rollers in a forward directions.

47. (New) The method of claim 45 comprising:

- operating the feed rollers and cutters to cut brush;
- monitoring the time sequence of the speed of the cutters to determine a maximum load condition;
- when the time sequence of the speed of the cutters indicates a maximum load condition will occur, because the engine speed has dropped or will drop below a predetermined speed, stopping the feed rollers;
- continuing to monitor the time sequence of the speed of the cutters and reversing the feed rollers for a predetermined period of time;
- if the engine speed continues to drop, reversing the feed rollers for a second predetermined period of time; and
- if the engine speed is above a recovery point, starting the feed rollers in a forward direction.

48. (New) The method of claim 45 comprising:

- operating the feed rollers and cutters to cut brush;
- monitoring the time sequence of the speed of the cutters to determine a maximum load condition;
- when the time sequence of the speed of the cutters indicates a maximum load condition will occur, stopping the feed rollers;
- reversing the feed rollers for a predetermined period of time; and

operating the feed rollers in a forward direction to deliver brush to the cutters.

49. (New) The method of claim 45 comprising;
operating the feed rollers and cutters to cut brush;
monitoring a time sequence of the condition of a hydraulic switch for
sensing a predetermined high pressure in the hydraulic control;
if the said time sequence indicates the hydraulic switch senses said
predetermined high pressure for a predetermined time duration, momentarily reversing
the feed rollers for a predetermined period of time; and
resuming operation of the feed rollers to cut brush .

50. (New) The method of claim 45 comprising:
operating the feed rollers and cutters to cut brush while monitoring the time
sequence of the speed of said feed rollers;
identifying a feeding problem by evaluating said time sequence of the speed of
said feed rollers;
momentarily reversing the feed rollers for a predetermined period of time; and
resuming operation of the feed rollers to cut brush.

51. (New) The method of claim 45 comprising;
sensing how long the brush chipper has not been used for chipping while set in a
normal operating condition;

if the brush chipper has remained unused for a predetermined period of time,
reducing the engine speed to idle while allowing the feed rollers to rotate;

when said feed rollers move apart, stopping the feed rollers until said engine
returns to a predetermined speed; and

after said engine returns to said predetermined speed, starting the feed rollers to
allow brush to be pulled into the cutters by the feed rollers.

52. (New) The method of claim 45 comprising:

sensing how long the brush chipper has not been used for chipping while set in a
normal operating condition;

if the brush chipper has remained unused for a predetermined period of time,
reducing the engine speed to idle while allowing the feed rollers to rotate;

if the engine speed slows below idle speed due to brush being cut again, stopping
the feed rollers until said engine returns to a predetermined speed; and

after said engine returns to said predetermined speed, starting the feed rollers to allow
brush to be pulled into the cutters by the feed rollers.

53. (New) The method of claim 45 wherein:

operating the brush chipper at full engine speed with the feed rollers rotating;

monitoring the time sequence of events related to the utilization of the brush
chipper to determine inactive use wherein said sequence of events being monitored
comprising at least one of:

a time sequence of the distance between feed rollers;

a time sequence of the pressure in feed roller hydraulic circuit; and
a time sequence of engine loading; and subsequently modifying the engine to an operating state of slower speed in response to monitoring the time sequence of events.

54. (New) The method of claim 46 wherein subsequent time sequence of events further includes monitoring the distance between the feed rollers with the engine in low idle wherein when the distance between the feed rollers increases, indicating that material is being fed,
controlling the hydraulic control for rotating the feed rollers to stop the rotation of the feed rollers for a predetermined time period, while the engine speed is increased to full speed, and using the hydraulic control for rotating the feed rollers to re-start rotation of the feed rollers.

55. (New) The method of claim 45 wherein the time sequence of events comprises a speed of rotation of the engine and the method further comprises calculating a rate of deceleration and the modifying of the performance comprises stopping or reversing the feed rollers.

56. (New) The method of claim 45 comprising:
operating the feed rollers and cutters to cut brush;
monitoring the time sequence of an operating parameter during a first time period;

making a first adjustment to the operating of the feed rollers in response to a predetermined characteristic of the time sequence of the operating parameter in the first time period;

monitoring the time sequence of an operating parameter during a second time period during which the first adjustment should affect the operating parameter; and

making a second adjustment to the operating of the feed rollers, different than the first adjustment, in response to a predetermined characteristic of the time sequence of the operating parameter in the second time period.

57. (New) The method of claim 49 wherein:

the operating parameter monitored in the first time period comprises the speed of the cutters;

the first adjustment of the feed rollers comprises stopping the feed rollers and the predetermined characteristic comprises the speed of the cutters dropping below a predetermined speed;

the operating parameter monitored in the second time period comprises the speed of the cutters;

the second adjustment to the operation of the feed rollers comprises either operating the feed rollers in reverse when the predetermined characteristic of the speed of the cutters indicates the speed will stay below the predetermined speed or is continuing to drop or operating the feed rollers in forward when the predetermined characteristic of the speed of the cutters indicates the speed will be above the predetermined speed.